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TOPICAL HAZARD EVALUATION PROGRAM OF CANDIDATE INSECT REPELLENT--ETC(U)  
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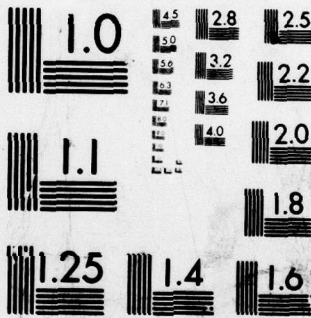
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**UNITED STATES ARMY  
ENVIRONMENTAL HYGIENE  
AGENCY**

**ABERDEEN PROVING GROUND, MD 21010**

TOPICAL HAZARD EVALUATION PROGRAM  
OF CANDIDATE INSECT REPELLENT AI3-37416a  
US DEPARTMENT OF AGRICULTURE PROPRIETARY COMPOUND  
STUDY NO. 75-51-0099-79 ✓  
MARCH 1978 - JUNE 1979

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| 1. REPORT NUMBER<br>75-51-0099-79 (6)  | 2. GOVT ACCESSION NO. | 3. RECIPIENT'S CATALOG NUMBER                                  |
| 4. TITLE (and Subtitle)<br>Topical Hazard Evaluation Program of<br>Candidate Insect Repellent AI3-37416a, US Depart-<br>ment of Agriculture Proprietary Compound, Study No.<br>75-51-0099-79, March 1978 - June 1979   |                       | 5. TYPE OF REPORT & PERIOD COVERED<br>Final, Mar 78 - Jun 79   |
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| 18. SUPPLEMENTARY NOTES<br>(9) Final rept. Mar 78-Jun 79,  |                       |  |
| 19. KEY WORDS (Continue on reverse side if necessary and identify by block number)<br>Topical Hazard Evaluation AI3-37416a<br>USDA Proprietary Compound skin irritation<br>candidate repellent eye irritation  |                       |  |
| 20. ABSTRACT (Continue on reverse side if necessary and identify by block number)<br>A preliminary hazard evaluation of AI3-37416a was performed by means of labora-<br>tory animal studies using New Zealand White rabbits. The technical grade com-<br>pound caused moderate corneal and conjunctival irritation, but no primary skin<br>irritation. |                       |  |

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DEPARTMENT OF THE ARMY  
U. S. ARMY ENVIRONMENTAL HYGIENE AGENCY  
ABERDEEN PROVING GROUND, MARYLAND 21010

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TOPICAL HAZARD EVALUATION PROGRAM  
OF CANDIDATE INSECT REPELLENT AI3-37416a  
US DEPARTMENT OF AGRICULTURE PROPRIETARY COMPOUND  
STUDY NO. 75-51-0099-79  
MARCH 1978 - JUNE 1979

1. AUTHORITY.

a. Letter, US Department of Agriculture - Agricultural Research Service, Southern Region, Insects Affecting Man-Research Laboratory, Gainesville, Florida, dated 23 March 1978.

b. Memorandum of Understanding between the Department of the Army, Office of The Surgeon General; the US Army Health Services Command; the US Army Environmental Hygiene Agency, the Armed Forces Pest Control Board; and the US Department of Agriculture, effective 1970 with Amendment 1, effective August 1974.

2. REFERENCE. Toxicology Division Procedural Guide, USAEHA, 1972, revised 1976.

3. PURPOSE. The purpose of this program is to provide guidance for further entomological testing of the candidate insect repellent AI3-37416a.

4. SUMMARY OF FINDINGS. A hazard evaluation of the candidate repellent AI3-37416a, USDA Proprietary Compound, was conducted by this Agency using New Zealand White rabbits for skin and eye studies. A tabular presentation of animal toxicity data developed in this Agency follows:\*†

\* In conducting the studies described in this report, the investigators adhered to the "Guide for the Care and Use of Laboratory Animals," US Department of Health, Education, and Welfare Publication No. (NIH) 74-23, revised 1978.

† The experiments reported herein were performed in animal facilities fully accredited by the American Association for the Accreditation of Laboratory Animal Care.

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TABULAR PRESENTATION OF DATA

| <u>Test</u>  | <u>Results</u>  | <u>Interpretation</u>             |
|--|---|-----------------------------------|
| <u>SKIN IRRITATION STUDIES</u>   |   |                                   |
| <u>Rabbits</u>   |   |                                   |
| Single 24-hour application to intact and abraded skin of New Zealand White rabbits.                                | Compound A13-37416a did not cause any irritation of the intact skin or of the skin surrounding an abrasion.   | USAEHA Category I (ref Appendix). |
| 0.5 ml technical grade compound applied to each of six rabbits.  |   |                                   |
| <u>EYE IRRITATION STUDIES</u>  |   |                                   |
| <u>Rabbits</u>   |   |                                   |
| Single 24-hour application of 0.1 ml technical grade compound to one eye of each of six New Zealand White rabbits. | Compound A13-37416a caused moderate corneal and conjunctival irritation in six of six rabbits. All corneas exhibited signs of injury at 72 hours, but had healed by 7 days. | USAEHA Category E (ref Appendix). |

Study No. 75-51-0099-79, Mar 78 - Jun 79

5. CONCLUSION. Technical grade compound AI3-37416a caused moderate corneal and conjunctival damage in all rabbits tested, and does not qualify as a nonhazardous insect repellent.

6. RECOMMENDATION. Under the provisions of the Memorandum of Understanding (paragraph 1b), it is recommended that AI3-37416a, USDA Proprietary Compound, not be approved for further testing as a candidate insect repellent. However, if this compound presents a significant improvement in pest repellent properties over existing compounds, it is suggested that it be purified through activated charcoal and resubmitted in its proposed use formulation and/or concentration.

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TOPICAL HAZARD EVALUATION PROGRAM  
DEFINITIONS OF CATEGORIES OF COMPOUNDS BEING  
CONSIDERED FOR ACUTE SKIN APPLICATION

CATEGORY I - Compounds producing no primary irritation of the intact skin or no greater than mild primary irritation of the skin surrounding an abrasion. (INTERPRETATION: No restriction for acute application to the human skin.)

CATEGORY II - Compounds producing mild primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should be used only on human skin found by examination to have no abrasions or may be used as a clothing impregnant.)

CATEGORY III - Compounds producing moderate primary irritation of the intact skin and the skin surrounding an abrasion. (INTERPRETATION: Should not be used directly on the skin without a prophetic patch test having been conducted on humans to determine irritation potential to human skin. May be used without patch testing, with extreme caution, as clothing impregnants. Compound should be resubmitted in the form and at the intended use concentration so that its irritation potential can be reexamined using other test techniques on animals.)

CATEGORY IV - Compounds producing moderate to severe primary irritation of the intact skin and of the skin surrounding an abrasion and, in addition, producing necrosis, vesiculation, and/or eschars. (INTERPRETATION: Should be resubmitted for testing in the form and at the intended use concentration. Upon resubmission, its irritation potential will be reexamined using other test techniques on animals, prior to possible prophetic patch testing in humans, at concentrations which have been shown not to produce primary irritation in animals.)

CATEGORY V - Compounds impossible to classify because of staining of the skin or other masking effects owing to physical properties of the compound. (INTERPRETATION: Not suitable for use on humans.)

EYE CATEGORIES:

A. Compounds noninjurious to the eye. INTERPRETATION: Irritation of human eyes is not expected if the compound should accidentally get into the eyes, provided it is washed out as soon as possible.

B. Compounds producing mild injury to the cornea. INTERPRETATION: Should be used with caution around the eyes.

C. Compounds producing mild injury to the cornea, and in addition some injury to the conjunctiva. INTERPRETATION: Should be used with caution around the eyes and mucosa.

D. Compounds producing moderate injury to the cornea. INTERPRETATION: Should be used with extreme caution around the eyes.

E. Compounds producing moderate injury to the cornea, and in addition producing some injury to the conjunctiva. INTERPRETATION: Should be used with extreme caution around the eyes and mucosa.

F. Compounds producing severe injury to the cornea and to the conjunctiva. INTERPRETATION: Should be used with extreme caution. It is recommended that use be restricted to areas other than the face.